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10/596,301

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Martin Paul Wilson

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EXAMINER

RILEY, SHAWN

ART UNIT

PAPER NUMBER

2838

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/596,301 | Applicant(s) WILSON, MARTIN PAUL | |
| | Examiner Shawn Riley | Art Unit 2838 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-26 and 28-40 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 16-20, 26 and 28-40 is/are rejected.
- 7) ☒ Claim(s) 5-14 and 21-25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>06/08; 12/06; & 6/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 16-20, 26, and 28-40 are rejected under 35 U.S.C. §102(b) as being fully anticipated by High-Efficiency High-Level Modulator for Use in Dynamic Envelope Tracking CDMS RF Power Amplifiers, IEEE 2001 (D1). D1 shows,¹ (in, e.g., the(ir) figures 2 and 3 on 1510 and figures 5 and 6 on 1511 and corresponding disclosure) a voltage summer) including a transformer (Lp, Ls) having a primary side (Lp) and a secondary side (Ls), where a first voltage (ELp) to be summed is connected to the primary side and a second voltage (ELs) to be summed is connected to the secondary side.

In deed, the "voltage summer" according to claim 1 modulates the dc voltage (224) applied to the secondary winding in response to the selected ac voltage (226) applied to the primary winding and, actually, is thus a modulator providing a modulated dc voltage at its output. The term "voltage summer" is technically correct but misleading because the "sum" of the voltages applied to the transformer windings is only instantaneous due to the frequency of the primary side ac voltage and is not the actual aim of the circuit. A time constant "sum" of the voltages is not intended by this circuit rather a dc voltage whose voltage level is dynamically adapted to an envelope by a selected ac voltage

For method claims relating to claims 16-20, note that under MPEP 2112.02, the principles of inherency, if a prior art device, in its normal and usual operation, would

¹ Note claims will be addressed individually and the material in parentheses are the examiner's annotated comments. Further unless needed for clarity reasons, recited limitation(s), will be annotated only upon their first occurrence. Claims that are not annotated are seen as having already had the invention(s) addressed previously in an annotated claim and may be repeated for convenience of the applicant/examiner. Bolded words/phrases indicate rejected material based 112 paragraph rejections. Underlined words/phrases indicate objected to material..

necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). Therefore the previous rejections based on the apparatus will not be repeated

The features contained in claims 2-4 and 17-20 are disclosed in D1.

Figure 7 of D1 shows a ring shaped transformer (Ls, Lp, Lx) which basically corresponds to the transformer claimed in claims 26 and 40. However, apparently neither an equal number of turns of the primary and secondary winding nor that each primary winding turn is closely coupled with a secondary winding turn can be derived from it. However, it should be made clear in claims 26 and 40 that the transformers are intended to be comprised in the voltage modulator according to claims 1-25.

The idea of the present invention is to apply selected ac voltages to the primary winding of the transformer to modulate the dc voltage applied to the secondary winding in response to the selected ac voltage. The selection of an ac voltage is performed in accordance with the result of a comparison of voltage or current signal representing the "summed" or modulated dc output voltage feedback to a difference means (244) or subtractor (264) which generates a control signal representing the difference between the feedback voltage or current signal. This control signal is input to a drive amplifier which generates the ac voltage applied to the primary winding in response to the control signal (Figures 5 and 6 of the present application). Note that claims 26, 28-40 are also anticipated, e.g., what if $x=y=1$?

1. A voltage summer including a transformer having a primary side and a secondary side, wherein a first voltage to be summed is connected to the primary side and a second voltage to be summed is connected to the secondary side.
2. A voltage summer according to claim 1, wherein the first voltage is connected between the first tap of the primary side and the second tap of the primary side, and the second voltage is connected to a first tap of the secondary side, a summed voltage being provided on a second tap of the primary or secondary side.
3. A voltage summer according to claim 2, wherein the first voltage is greater than the second voltage and the summed voltage is provided on the second tap of the primary side of the transformer.
4. A voltage summer according to claim 1 wherein the first voltage is a

variable voltage.

16. A method of summing voltages including applying a first voltage to a primary side of a transformer and applying a second voltage to a secondary side of the transformer, wherein a sum of the first and second voltages is provided on one of the first or second sides of the transformer.

17. A method according to claim 16, wherein the first voltage is applied between the first tap of the primary side and the second tap of the primary side, and the second voltage is applied to a first tap of the secondary side, wherein a summed voltage is provided on a second tap of the primary or secondary side.

18. A method according to claim 17, wherein the first voltage is greater than the second voltage and the summed voltage is provided on the second tap of the primary side of the transformer.

19. A method according to claim 16 further comprising the step of varying the first voltage.

20. A method according to claim 16 further comprising the step of varying the second voltage.

Allowable Subject Matter

3. Claims 5-14 and 21-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. As allowable subject matter has been indicated, applicant's response must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 C.F.R. § 1.111(b) and section 707.07(a) of the M.P.E.P.

5. The following is an examiner's statement of reasons for allowance: As to claim 5, no prior art uncovered anticipates or renders obvious applicant(s) claimed voltage summer wherein the first voltage is provided by a first switchable voltage source.

Further, as to claim 6, no prior art uncovered anticipates or renders obvious applicant(s) claimed voltage summer according to claim 4 wherein the second voltage is

variable.

Further, as to claim 11, no prior art uncovered anticipates or renders obvious applicant(s) claimed voltage source wherein the first voltage is a coarse voltage signal and the second voltage is a fine voltage signal.

Further, as to claim 21, no prior art uncovered anticipates or renders obvious applicant(s) claimed method including varying the first voltage between n levels and varying the second voltage between m levels, wherein the summed voltage is thereby variable between $n*m$ levels.

Further, as to claim 22, no prior art uncovered anticipates or renders obvious applicant(s) claimed method including the first voltage is a coarse voltage signal and the second voltage is a fine voltage signal

Further, as to claim 24, no prior art uncovered anticipates or renders obvious applicant(s) claimed method including the step of generating a reference voltage, and removing the reference voltage from the summed voltage to thereby generate the second voltage.

Further, as to claim 25, no prior art uncovered anticipates or renders obvious applicant(s) claimed method including the step of generating a reference current, sensing the current in the primary side of the transformer, removing the reference current from the sensed current to generate a difference current, and supplying the second voltage in dependence on the difference current.

Conclusion

N.B. Any inquiry from other than the applicant/attorney of record (~~THAT INCLUDES SECRETARIAL AND ANY OTHER TYPE OF SUPPORT STAFF~~) concerning this communication or earlier communications from the Examiner should be directed to the Patent Electronic Business Center (EBC) at 1.866.217.9197.

Any inquiry from a member of the press concerning this communication or earlier communications from the Examiner or the application should be directed to the Office of Public Affairs at 703.305.8341. Any inquiry from the applicant or an attorney of record concerning this communication or earlier communications from the Examiner should be directed to Examiner Riley whose telephone number is 571.272.2083. The Examiner can normally be reached Monday through Thursday from 7:30-6:00 p.m. Eastern Standard Time. The Examiner's Supervisor is Akm Ullah can be reached on 571-272-2361. Any inquiry about a case's location, retrieval of a case, or receipt of an amendment into a case or information regarding sent correspondence to a case **should be directed to 2800's Customer Service Center** at 571.272.2815. Any papers to be sent by fax MUST BE sent to fax number **571-273-8300**. Any inquiry of a general nature of this application should be **directed to the Group receptionist** whose telephone number is 571.272.2800. Status information of cases may be found at <http://pair-direct.uspto.gov> wherein unpublished application information is found through private PAIR and published application information is found through public PAIR. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Further help on using the PAIR system is available at 1.866.217.9197 (Electronic Business Center). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

February 09

/Shawn Riley/
Primary Examiner AU 2838